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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-4. (cancelled)

5. (previously presented) A method for operating an engine coupled to an exhaust system having a diesel particulate filter, where the exhaust system terminates at a tailpipe, the engine having an electronically controlled variable geometry turbocharger valve that adjusts oxygen flow entering the engine, the method comprising:

commencing a self-sustaining filter regeneration;

detecting temperature indicative of said diesel particulate filter;

controlling air flow via the variable geometry turbocharger valve based on said detected temperature so as to prevent temperature of the diesel particulate filter from rising to a point that causes degradation due to excessive exothermic reaction by adjusting the turbocharger valve to decrease said air flow, while continuing filter regeneration; and

continuously flowing all exhaust emitted from the tailpipe through the particulate filter.

6-17. (cancelled)

18. (currently amended) A system comprising:

a diesel engine having an exhaust system that terminates at a tailpipe;

an electronically controlled valve coupled to said engine;

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an exhaust gas recirculation valve coupled to said engine;

a hydrocarbon injector coupled in an exhaust system of the engine;

an exhaust gas oxygen sensor coupled in said exhaust system of the engine;

a diesel particulate filter in said exhaust system coupled to said engine, said filter coupled downstream of said exhaust gas oxygen sensor; and

a controller for commencing self-sustaining regeneration of said particulate filter, determining temperature of the filter, if said temperature is greater than a limit, determining a desired oxygen amount entering said filter and coordinating adjustment of said valve, said exhaust gas recirculation valve, and said injector to reduce oxygen entering said filter to said desired oxygen amount using feedback from said oxygen sensor and to limit said self-sustaining regeneration reaction, while controlling a flow rate of exhaust gas, where all exhaust emitted from the tailpipe is continuously flowed through the particulate filter.

19. (previously presented) The system recited in Claim 18 wherein said electronically controlled valve is an electronically controlled throttle valve.

20. (previously presented) The system recited in Claim 19 wherein said controller commences said self-sustaining regeneration by adjusting engine operating parameters away from normal operating conditions to raise said temperature of the filter to a temperature necessary to initiate reaction, and then returning said engine operating parameters to said normal conditions.

21. (previously presented) The system recited in Claim 20 wherein said diesel particulate filter comprises SiC.

22. (previously presented) The system recited in Claim 21 wherein said diesel particulate filter comprises cordierite.

23. (previously presented) The system recited in Claim 22 wherein said controller limits said self-sustaining regeneration reaction by preventing temperature of said particulate filter from becoming greater than a predetermined value.

24. (previously presented) A system comprising:

a diesel engine having an exhaust system that terminates at a tailpipe;

an electronically controlled valve coupled to said engine;

an exhaust gas recirculation valve coupled to said engine;

a hydrocarbon injector coupled in an exhaust system of the engine;

a diesel particulate filter in said exhaust system coupled to said engine; and

a controller for commencing self-sustaining regeneration of said particulate filter, determining temperature of the filter, if said temperature is greater than a limit, determining a desired oxygen amount entering said filter and coordinating adjustment of said valve, said exhaust gas recirculation valve, and said injector to reduce oxygen entering said filter to said desired oxygen amount using feedback from an oxygen sensor and to limit said self-sustaining regeneration reaction, while controlling a flow rate of exhaust gas, where all exhaust emitted from the tailpipe is continuously flowed through the particulate filter.